



# SEQUENCE LISTING

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SNOW, ALAN D.

<120> SMALL PEPTIDES FOR THE TREATMENT OF ALZHEIMER'S DISEASE  
AND OTHER BETA-AMYLOID PROTEIN FIBRILLOGENESIS  
DISORDERS

<130> PROTEO.P03CI2

<140> 10/821,250  
<141> 2004-04-08

<150> 60/461,655  
<151> 2003-04-08

<150> 09/962,955  
<151> 2001-09-24

<150> 09/938,275  
<151> 2001-08-22

<150> 08/947,057  
<151> 1997-10-08

<160> 108

<170> PatentIn Ver. 3.2

<210> 1  
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<400> 1  
Arg Lys Arg Leu Gln Val Gln Leu Ser Ile Arg Thr  
1 5 10

<210> 2  
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Lys Ala Phe Asp Ile Thr Tyr Val Arg Leu Lys Phe  
1 5 10

<210> 3

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peptide

<400> 3

Arg Gln Val Phe Gln Val Ala Tyr Ile Ile Ile Lys Ala  
1 5 10

<210> 4

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<400> 4

His Gln Thr Trp Thr Arg Asn Leu Gln Val Thr Leu  
1 5 10

<210> 5

<211> 12

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<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 5

Ile Ser Asn Val Phe Val Gln Arg Leu Ser Leu Ser  
1 5 10

<210> 6

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<400> 6  
Ala Ser Pro Pro Ser Val Lys Val Trp Gln Asp Ala  
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<210> 7  
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<400> 7  
Arg Gly Leu Val Phe His Thr Gly Thr Lys Asn Ser Phe  
1 5 10

<210> 8  
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<400> 8  
Tyr Leu Ser Lys Gly Arg Leu Val Phe Ala Leu Gly  
1 5 10

<210> 9  
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<400> 9  
Asn Asp Gly Lys Trp His Thr Val Val Phe Gly His  
1 5 10

<210> 10  
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<400> 10

Gly Asn Ser Thr Ile Ser Ile Arg Ala Pro Val Tyr  
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<210> 11

<211> 12

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<400> 11

Thr Leu Phe Leu Ala His Gly Arg Leu Val Phe Met  
1 5 10

<210> 12

<211> 12

<212> PRT

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<400> 12

His Pro Asp Asp Phe Val Phe Tyr Val Gly Gly Tyr  
1 5 10

<210> 13

<211> 12

<212> PRT

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<400> 13

Trp Leu Tyr Val Asp Asp Gln Leu Gln Leu Val Lys  
1 5 10

<210> 14

<211> 12  
<212> PRT  
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<400> 14  
Val Gln Ser Arg Gln His Ser Arg Ala Gly Gln Trp  
1 5 10

<210> 15  
<211> 12  
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Ala Gly Gln Trp His Arg Val Ser Val Arg Trp Gly  
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<210> 16  
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<400> 16  
Val Arg Trp Gly Met Gln Gln Ile Gln Leu Val Val  
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<210> 17  
<211> 12  
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<400> 17  
Thr Trp Ser Gln Lys Ala Leu His His Arg Val Pro  
1 5 10

<210> 18  
<211> 12  
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peptide

<400> 18  
Asp Gly Arg Trp His Arg Val Ala Val Ile Met Gly  
1 5 10

<210> 19  
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peptide

<400> 19  
Ala Pro Val Asn Val Thr Ala Ser Val Gln Ile Gln  
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<210> 20  
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<400> 20  
Lys Pro Arg Leu Gln Phe Ser Leu Asp Ile Gln Thr  
1 5 10

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<210> 22  
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Ala Ala Ser Ile Lys Val Ala Val Ser Ala Asp Arg  
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<210> 23  
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Ala Ser Phe Gly Phe Gln Thr Phe Gln Pro Ser Gly  
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Phe Lys Leu Pro Gln Glu Leu Leu Lys Pro Arg Ser  
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<210> 25  
<211> 12  
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<400> 25  
Lys Asn Ser Phe Met Ala Leu Tyr Leu Ser Lys Gly

1 5 10

<210> 26  
<211> 12  
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<220>  
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peptide

<400> 26  
Leu His Val Phe Tyr Asp Phe Gly Phe Ser Asn Gly  
1 5 10

<210> 27  
<211> 12  
<212> PRT  
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peptide

<400> 27  
Val Leu Val Arg Val Glu Arg Ala Thr Val Phe Ser  
1 5 10

<210> 28  
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peptide

<400> 28  
Phe Leu Pro Leu Ala Leu Pro Asp Val Ala Pro Ile  
1 5 10

<210> 29  
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peptide



<400> 29

Gly Pro Leu Pro Ser Tyr Leu Gln Phe Val Gly Ile  
1 5 10

<210> 30

<211> 12

<212> PRT

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peptide

<400> 30

Ser Val Gln Ile Gln Gly Ala Val Gly Met Arg Gly  
1 5 10

<210> 31

<211> 416

<212> PRT

<213> Homo sapiens

<400> 31

Val Val Arg Leu Asn Asp Thr Val Gly Val Thr Lys Lys Cys Ser Glu  
1 5 10 15

Asp Trp Lys Leu Val Arg Ser Ala Ser Phe Ser Arg Gly Gly Gln Leu  
20 25 30

Ser Phe Thr Asp Leu Gly Leu Pro Pro Thr Asp His Leu Gln Ala Ser  
35 40 45

Phe Gly Phe Gln Thr Phe Gln Pro Ser Gly Ile Leu Leu Asp His Gln  
50 55 60

Thr Trp Thr Arg Asn Leu Gln Val Thr Leu Glu Asp Gly Tyr Ile Glu  
65 70 75 80

Leu Ser Thr Ser Asp Ser Gly Gly Pro Ile Phe Lys Ser Pro Gln Thr  
85 90 95

Tyr Met Asp Gly Leu Leu His Tyr Val Ser Val Ile Ser Asp Asn Ser  
100 105 110

Gly Leu Arg Leu Leu Ile Asp Asp Gln Leu Leu Arg Asn Ser Lys Arg  
115 120 125

Leu Lys His Ile Ser Ser Ser Arg Gln Ser Leu Arg Leu Gly Gly Ser  
130 135 140

Asn Phe Glu Gly Cys Ile Ser Asn Val Phe Val Gln Arg Leu Ser Leu  
145 150 155 160

Ser	Pro	Glu	Val	Leu	Asp	Leu	Thr	Ser	Asn	Ser	Leu	Lys	Arg	Asp	Val	165	170	175
Ser	Leu	Gly	Gly	Cys	Ser	Leu	Asn	Lys	Pro	Pro	Phe	Leu	Met	Leu	Leu	180	185	190
Lys	Gly	Ser	Thr	Arg	Phe	Asn	Lys	Thr	Lys	Thr	Phe	Arg	Ile	Asn	Gln	195	200	205
Leu	Leu	Gln	Asp	Thr	Pro	Val	Ala	Ser	Pro	Arg	Ser	Val	Lys	Val	Trp	210	215	220
Gln	Asp	Ala	Cys	Ser	Pro	Leu	Pro	Lys	Thr	Gln	Ala	Asn	His	Gly	Ala	225	230	235
Leu	Gln	Phe	Gly	Asp	Ile	Pro	Thr	Ser	His	Leu	Leu	Phe	Lys	Leu	Pro	245	250	255
Gln	Glu	Leu	Leu	Lys	Pro	Arg	Ser	Gln	Phe	Ala	Val	Asp	Met	Gln	Thr	260	265	270
Thr	Ser	Ser	Arg	Gly	Leu	Val	Phe	His	Thr	Gly	Thr	Lys	Asn	Ser	Phe	275	280	285
Met	Ala	Leu	Tyr	Leu	Ser	Lys	Gly	Arg	Leu	Val	Phe	Ala	Leu	Gly	Thr	290	295	300
Asp	Gly	Lys	Lys	Leu	Arg	Ile	Lys	Ser	Lys	Glu	Lys	Cys	Asn	Asp	Gly	305	310	315
Lys	Trp	His	Thr	Val	Val	Phe	Gly	His	Asp	Gly	Glu	Lys	Gly	Arg	Leu	325	330	335
Val	Val	Asp	Gly	Leu	Arg	Ala	Arg	Glu	Gly	Ser	Leu	Pro	Gly	Asn	Ser	340	345	350
Thr	Ile	Ser	Ile	Arg	Ala	Pro	Val	Tyr	Leu	Gly	Ser	Pro	Pro	Ser	Gly	355	360	365
Lys	Pro	Lys	Ser	Leu	Pro	Thr	Asn	Ser	Phe	Val	Gly	Cys	Leu	Lys	Asn	370	375	380
Phe	Gln	Leu	Asp	Ser	Lys	Pro	Leu	Tyr	Thr	Pro	Ser	Ser	Ser	Phe	Gly	385	390	395
Val	Ser	Ser	Cys	Leu	Gly	Gly	Pro	Leu	Glu	Lys	Gly	Ile	Tyr	Phe	Ser	405	410	415

<210> 32

<211> 964

<212> PRT

<213> Mus musculus

<400> 32

Thr	Ser	Ile	Ser	Leu	Tyr	Met	Lys	Pro	Pro	Pro	Lys	Pro	Gln	Thr	Thr	
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Gly	Ala	Trp	Val	Ala	Asp	Gln	Phe	Val	Leu	Tyr	Leu	Gly	Ser	Lys	Asn	
			20					25					30			
Ala	Lys	Lys	Glu	Tyr	Met	Gly	Leu	Ala	Ile	Lys	Asn	Asp	Asn	Leu	Val	
		35					40					45				
Tyr	Val	Tyr	Asn	Leu	Gly	Met	Lys	Asp	Val	Glu	Ile	Leu	Leu	Asp	Ser	
	50					55					60					
Lys	Pro	Val	Ser	Ser	Trp	Pro	Ala	Tyr	Phe	Ser	Ile	Val	Lys	Ile	Glu	
65					70					75					80	
Arg	Val	Gly	Lys	His	Gly	Lys	Val	Phe	Leu	Thr	Val	Pro	Ser	Ser	Ser	
				85					90					95		
Ser	Thr	Ala	Glu	Glu	Lys	Phe	Ile	Lys	Lys	Gly	Glu	Phe	Ala	Gly	Asp	
			100					105					110			
Asp	Ser	Leu	Leu	Asp	Leu	Thr	Pro	Glu	Asp	Thr	Val	Phe	Tyr	Val	Gly	
		115					120					125				
Gly	Val	Pro	Ala	Asn	Phe	Lys	Leu	Pro	Ala	Ser	Leu	Asn	Leu	Pro	Ser	
	130					135					140					
Tyr	Ser	Gly	Cys	Leu	Glu	Leu	Ala	Thr	Leu	Asn	Asn	Asp	Val	Ile	Ser	
145					150					155					160	
Leu	Tyr	Asn	Phe	Lys	His	Ile	Tyr	Asn	Met	Asp	Pro	Ser	Lys	Ser	Val	
				165					170					175		
Pro	Cys	Ala	Arg	Asp	Lys	Leu	Ala	Phe	Thr	Gln	Ser	Arg	Ala	Ala	Ser	
			180					185					190			
Tyr	Phe	Phe	Asp	Gly	Ser	Ser	Tyr	Ala	Val	Val	Arg	Asp	Ile	Thr	Arg	
		195					200					205				
Arg	Gly	Lys	Phe	Gly	Gln	Val	Thr	Arg	Phe	Asp	Ile	Glu	Ile	Arg	Thr	
	210					215					220					
Pro	Ala	Asp	Asn	Gly	Leu	Val	Leu	Leu	Met	Val	Asn	Gly	Ser	Met	Phe	
225					230					235					240	
Phe	Ser	Leu	Glu	Met	Arg	Asn	Gly	Tyr	Leu	His	Val	Phe	Tyr	Asp	Phe	
				245					250					255		
Gly	Phe	Ser	Asn	Gly	Pro	Val	His	Leu	Glu	Asp	Thr	Leu	Lys	Lys	Ala	
			260					265					270			
Gln	Ile	Asn	Asp	Ala	Lys	Tyr	Arg	Glu	Ile	Ser	Ile	Ile	Tyr	His	Asn	
		275					280					285				

Asp	Lys	Lys	Met	Ile	Leu	Val	Val	Asp	Arg	Arg	His	Val	Lys	Ser	Thr	290	295	300
Asp	Asn	Glu	Lys	Lys	Lys	Ile	Pro	Phe	Thr	Asp	Ile	Tyr	Ile	Gly	Gly	305	310	315
Ala	Pro	Gln	Glu	Val	Leu	Gln	Ser	Arg	Thr	Leu	Arg	Ala	His	Leu	Pro	325	330	335
Leu	Asp	Ile	Asn	Phe	Arg	Gly	Cys	Met	Lys	Gly	Ile	Gln	Phe	Gln	Lys	340	345	350
Lys	Asp	Phe	Asn	Leu	Leu	Glu	Gln	Thr	Glu	Thr	Leu	Gly	Val	Gly	Tyr	355	360	365
Gly	Cys	Pro	Glu	Asp	Ser	Leu	Ile	Ser	Arg	Arg	Ala	Tyr	Phe	Asn	Gly	370	375	380
Gln	Ser	Phe	Ile	Ala	Ser	Ile	Gln	Lys	Ile	Ser	Phe	Phe	Asp	Gly	Phe	385	390	395
Glu	Gly	Gly	Phe	Asn	Phe	Arg	Thr	Leu	Gln	Pro	Asn	Gly	Leu	Leu	Phe	405	410	415
Tyr	Tyr	Thr	Ser	Gly	Ser	Asp	Val	Phe	Ser	Ile	Ser	Leu	Asp	Asn	Gly	420	425	430
Thr	Val	Val	Met	Asp	Val	Lys	Gly	Ile	Lys	Val	Met	Ser	Thr	Asp	Lys	435	440	445
Gln	Tyr	His	Asp	Gly	Leu	Pro	His	Phe	Val	Val	Thr	Ser	Ile	Ser	Asp	450	455	460
Thr	Arg	Tyr	Glu	Leu	Val	Val	Asp	Lys	Ser	Arg	Leu	Arg	Gly	Lys	Asn	465	470	475
Pro	Thr	Lys	Gly	Lys	Ala	Glu	Gln	Thr	Gln	Thr	Thr	Glu	Lys	Lys	Phe	485	490	495
Tyr	Phe	Gly	Gly	Ser	Pro	Ile	Ser	Pro	Gln	Tyr	Ala	Asn	Phe	Thr	Gly	500	505	510
Cys	Ile	Ser	Asn	Ala	Tyr	Phe	Thr	Arg	Leu	Asp	Arg	Asp	Val	Glu	Val	515	520	525
Glu	Ala	Phe	Gln	Arg	Tyr	Ser	Glu	Lys	Val	His	Thr	Ser	Leu	Tyr	Glu	530	535	540
Cys	Pro	Ile	Glu	Ser	Ser	Pro	Leu	Phe	Leu	Leu	His	Lys	Lys	Gly	Lys	545	550	555
Asn	Ser	Ser	Lys	Pro	Lys	Thr	Asn	Lys	Gln	Gly	Glu	Lys	Ser	Lys	Asp	565	570	575

Ala	Pro	Ser	Trp	Asp	Pro	Ile	Gly	Leu	Lys	Phe	Leu	Glu	Gln	Lys	Ala	
			580					585					590			
Pro	Arg	Asp	Ser	His	Cys	His	Leu	Phe	Ser	Ser	Pro	Arg	Ala	Ile	Glu	
		595					600					605				
His	Ala	Tyr	Gln	Tyr	Gly	Gly	Thr	Ala	Asn	Ser	Arg	Gln	Glu	Phe	Glu	
	610					615					620					
His	Glu	Gln	Gly	Asp	Phe	Gly	Glu	Lys	Ser	Gln	Phe	Ser	Ile	Arg	Leu	
625					630					635					640	
Lys	Thr	Arg	Ser	Ser	His	Gly	Met	Ile	Phe	Tyr	Val	Ser	Asp	Gln	Glu	
				645					650					655		
Glu	Asn	Asp	Phe	Met	Thr	Leu	Phe	Leu	Ala	His	Gly	Arg	Leu	Val	Phe	
			660					665					670			
Met	Phe	Asn	Val	Gly	His	Lys	Lys	Leu	Lys	Ile	Arg	Ser	Gln	Glu	Lys	
		675					680					685				
Tyr	Asn	Asp	Gly	Leu	Trp	His	Asp	Val	Ile	Phe	Ile	Arg	Glu	Lys	Ser	
	690					695					700					
Ser	Gly	Arg	Leu	Val	Ile	Asp	Gly	Leu	Arg	Val	Leu	Glu	Glu	Arg	Leu	
705					710					715					720	
Pro	Pro	Ser	Gly	Ala	Ala	Trp	Lys	Ile	Lys	Gly	Pro	Ile	Tyr	Leu	Gly	
				725					730					735		
Gly	Val	Ala	Pro	Gly	Arg	Ala	Val	Lys	Asn	Val	Gln	Ile	Thr	Ser	Val	
			740					745					750			
Tyr	Ser	Phe	Ser	Gly	Cys	Leu	Gly	Asn	Leu	Gln	Leu	Asn	Gly	Ala	Ser	
		755					760					765				
Ile	Thr	Ser	Ala	Ser	Gln	Thr	Phe	Ser	Val	Thr	Pro	Cys	Phe	Glu	Gly	
	770					775					780					
Pro	Met	Glu	Thr	Gly	Thr	Tyr	Phe	Ser	Thr	Glu	Gly	Gly	Tyr	Val	Val	
785					790					795					800	
Leu	Asp	Glu	Ser	Phe	Asn	Ile	Gly	Leu	Lys	Phe	Glu	Ile	Ala	Phe	Glu	
				805					810					815		
Val	Arg	Pro	Arg	Ser	Ser	Ser	Gly	Thr	Leu	Val	His	Gly	His	Ser	Val	
			820					825					830			
Asn	Gly	Glu	Tyr	Leu	Asn	Val	His	Met	Arg	Asn	Gly	Gln	Val	Ile	Val	
		835					840					845				
Lys	Val	Asn	Asn	Gly	Val	Arg	Asp	Phe	Ser	Thr	Ser	Val	Thr	Pro	Lys	
	850					855					860					

Gln Asn Leu Cys Asp Gly Arg Trp His Arg Ile Thr Val Ile Arg Asp  
 865 870 875 880

Ser Asn Val Val Gln Leu Asp Val Asp Ser Glu Val Asn His Val Val  
 885 890 895

Gly Pro Leu Asn Pro Lys Pro Val Asp His Arg Glu Pro Val Phe Val  
 900 905 910

Gly Gly Val Pro Glu Ser Leu Leu Thr Pro Arg Leu Ala Pro Ser Lys  
 915 920 925

Pro Phe Thr Gly Cys Ile Arg His Phe Val Ile Asp Ser Arg Pro Val  
 930 935 940

Ser Phe Ser Lys Ala Ala Leu Val Ser Gly Ala Val Ser Ile Asn Ser  
 945 950 955 960

Cys Pro Thr Ala

<210> 33

<211> 956

<212> PRT

<213> Mus musculus

<400> 33

Thr Ala Leu Lys Phe His Ile Gln Ser Pro Val Pro Ala Pro Glu Pro  
 1 5 10 15

Gly Lys Asn Thr Gly Asp His Phe Val Leu Tyr Met Gly Ser Arg Gln  
 20 25 30

Ala Thr Gly Asp Tyr Met Gly Val Ser Leu Arg Asn Gln Lys Val His  
 35 40 45

Trp Val Tyr Arg Leu Gly Lys Ala Gly Pro Thr Thr Leu Ser Ile Asp  
 50 55 60

Glu Asn Ile Gly Glu Gln Phe Ala Ala Val Ser Ile Asp Arg Thr Leu  
 65 70 75 80

Gln Phe Gly His Met Ser Val Thr Val Glu Lys Gln Met Val His Glu  
 85 90 95

Ile Lys Gly Asp Thr Val Ala Pro Gly Ser Glu Gly Leu Leu Asn Leu  
 100 105 110

His Pro Asp Asp Phe Val Phe Tyr Val Gly Gly Tyr Pro Ser Asn Phe  
 115 120 125

Thr Pro Pro Glu Pro Leu Arg Phe Pro Gly Tyr Leu Gly Cys Ile Glu  
 130 135 140

Met	Glu	Thr	Leu	Asn	Glu	Glu	Val	Val	Ser	Leu	Tyr	Asn	Phe	Glu	Gln	145	150	155	160
Thr	Phe	Met	Leu	Asp	Thr	Ala	Val	Asp	Lys	Pro	Cys	Ala	Arg	Ser	Lys	165	170	175	
Ala	Thr	Gly	Asp	Pro	Trp	Leu	Thr	Asp	Gly	Ser	Tyr	Leu	Asp	Gly	Ser	180	185	190	
Gly	Phe	Ala	Arg	Ile	Ser	Phe	Glu	Lys	Gln	Phe	Ser	Asn	Thr	Lys	Arg	195	200	205	
Phe	Asp	Gln	Glu	Leu	Arg	Leu	Val	Ser	Tyr	Asn	Gly	Ile	Ile	Phe	Phe	210	215	220	
Leu	Lys	Gln	Glu	Ser	Gln	Phe	Leu	Cys	Leu	Ala	Val	Gln	Glu	Gly	Thr	225	230	235	240
Leu	Val	Leu	Phe	Tyr	Asp	Phe	Gly	Ser	Gly	Leu	Lys	Lys	Ala	Asp	Pro	245	250	255	
Leu	Gln	Pro	Pro	Gln	Ala	Leu	Thr	Ala	Ala	Ser	Lys	Ala	Ile	Gln	Val	260	265	270	
Phe	Leu	Leu	Ala	Gly	Asn	Arg	Lys	Arg	Val	Leu	Val	Arg	Val	Glu	Arg	275	280	285	
Ala	Thr	Val	Phe	Ser	Val	Asp	Gln	Asp	Asn	Met	Leu	Glu	Met	Ala	Asp	290	295	300	
Ala	Tyr	Tyr	Leu	Gly	Gly	Val	Pro	Pro	Glu	Gln	Leu	Pro	Leu	Ser	Leu	305	310	315	320
Arg	Gln	Leu	Phe	Pro	Ser	Gly	Gly	Ser	Val	Arg	Gly	Cys	Ile	Lys	Gly	325	330	335	
Ile	Lys	Ala	Leu	Gly	Lys	Tyr	Val	Asp	Leu	Lys	Arg	Leu	Asn	Thr	Thr	340	345	350	
Gly	Ile	Ser	Phe	Gly	Cys	Thr	Ala	Asp	Leu	Leu	Val	Gly	Arg	Thr	Met	355	360	365	
Thr	Phe	His	Gly	His	Gly	Phe	Leu	Pro	Leu	Ala	Leu	Pro	Asn	Val	Ala	370	375	380	
Pro	Ile	Thr	Glu	Val	Val	Tyr	Ser	Gly	Phe	Gly	Phe	Arg	Gly	Thr	Gln	385	390	395	400
Asp	Asn	Asn	Leu	Leu	Tyr	Tyr	Arg	Thr	Ser	Pro	Asp	Gly	Pro	Tyr	Gln	405	410	415	
Val	Ser	Leu	Arg	Glu	Gly	His	Val	Thr	Leu	Arg	Phe	Met	Asn	Gln	Glu	420	425	430	

Val	Glu	Thr	Gln	Arg	Val	Phe	Ala	Asp	Gly	Ala	Pro	His	Tyr	Val	Ala		
		435					440					445					
Phe	Tyr	Ser	Asn	Val	Thr	Gly	Val	Trp	Leu	Tyr	Val	Asp	Asp	Gln	Leu		
	450					455					460						
Gln	Leu	Val	Lys	Ser	His	Glu	Arg	Thr	Thr	Pro	Met	Leu	Gln	Leu	Gln		
465					470					475					480		
Pro	Glu	Glu	Pro	Ser	Arg	Leu	Leu	Leu	Gly	Gly	Leu	Pro	Val	Ser	Gly		
				485					490					495			
Thr	Phe	His	Asn	Phe	Ser	Gly	Cys	Ile	Ser	Asn	Val	Phe	Val	Gln	Arg		
			500					505					510				
Leu	Arg	Gly	Pro	Gln	Arg	Val	Phe	Asp	Leu	His	Gln	Asn	Met	Gly	Ser		
		515					520					525					
Val	Asn	Val	Ser	Val	Gly	Cys	Thr	Pro	Ala	Gln	Leu	Ile	Glu	Thr	Ser		
	530					535					540						
Arg	Ala	Thr	Ala	Gln	Lys	Val	Ser	Arg	Arg	Ser	Arg	Gln	Pro	Ser	Gln		
545					550					555					560		
Asp	Leu	Ala	Cys	Thr	Thr	Pro	Trp	Leu	Pro	Gly	Thr	Ile	Gln	Asp	Ala		
				565					570					575			
Tyr	Gln	Phe	Gly	Gly	Pro	Leu	Pro	Ser	Tyr	Leu	Gln	Phe	Val	Gly	Ile		
			580					585					590				
Ser	Pro	Ser	His	Arg	Asn	Arg	Leu	His	Leu	Ser	Met	Leu	Val	Arg	Pro		
		595					600					605					
His	Ala	Ala	Ser	Gln	Gly	Leu	Leu	Leu	Ser	Thr	Ala	Pro	Met	Ser	Gly		
	610					615					620						
Arg	Ser	Pro	Ser	Leu	Val	Leu	Phe	Leu	Asn	His	Gly	His	Phe	Val	Ala		
625					630				635						640		
Gln	Thr	Glu	Gly	Pro	Gly	Pro	Arg	Leu	Gln	Val	Gln	Ser	Arg	Gln	His		
				645					650					655			
Ser	Arg	Ala	Gly	Gln	Trp	His	Arg	Val	Ser	Val	Arg	Trp	Gly	Met	Gln		
			660					665					670				
Gln	Ile	Gln	Leu	Val	Val	Asp	Gly	Ser	Gln	Thr	Trp	Ser	Gln	Lys	Ala		
		675					680					685					
Leu	His	His	Arg	Val	Pro	Arg	Ala	Glu	Arg	Pro	Gln	Pro	Tyr	Thr	Leu		
	690					695					700						
Ser	Val	Gly	Gly	Leu	Pro	Ala	Ser	Ser	Tyr	Ser	Ser	Lys	Leu	Pro	Val		
705					710					715					720		



Ser	Val	Gly	Phe	Ser	Gly	Cys	Leu	Lys	Lys	Leu	Gln	Leu	Asp	Lys	Gln	725	730	735
Pro	Leu	Arg	Thr	Pro	Thr	Gln	Met	Val	Gly	Val	Thr	Pro	Cys	Val	Ser	740	745	750
Gly	Pro	Leu	Glu	Asp	Gly	Leu	Phe	Phe	Pro	Gly	Ser	Glu	Gly	Val	Val	755	760	765
Thr	Leu	Glu	Leu	Pro	Lys	Ala	Lys	Met	Pro	Tyr	Val	Ser	Leu	Glu	Leu	770	775	780
Glu	Met	Arg	Pro	Leu	Ala	Ala	Ala	Gly	Leu	Ile	Phe	His	Leu	Gly	Gln	785	790	795
Ala	Leu	Ala	Thr	Pro	Tyr	Met	Gln	Leu	Lys	Val	Leu	Thr	Glu	Gln	Val	805	810	815
Leu	Leu	Gln	Ala	Asn	Asp	Gly	Ala	Gly	Glu	Phe	Ser	Thr	Trp	Val	Thr	820	825	830
Tyr	Pro	Lys	Leu	Cys	Asp	Gly	Arg	Trp	His	Arg	Val	Ala	Val	Ile	Met	835	840	845
Gly	Arg	Asp	Thr	Leu	Arg	Leu	Glu	Val	Asp	Thr	Gln	Ser	Asn	His	Thr	850	855	860
Thr	Gly	Arg	Leu	Pro	Glu	Ser	Leu	Ala	Gly	Ser	Pro	Ala	Leu	Leu	His	865	870	875
Leu	Gly	Ser	Leu	Pro	Lys	Ser	Ser	Thr	Ala	Arg	Pro	Glu	Leu	Pro	Ala	885	890	895
Tyr	Arg	Gly	Cys	Leu	Arg	Lys	Leu	Leu	Ile	Asn	Gly	Ala	Pro	Val	Asn	900	905	910
Val	Thr	Ala	Ser	Val	Gln	Ile	Gln	Gly	Ala	Val	Gly	Met	Arg	Gly	Cys	915	920	925
Pro	Ser	Gly	Thr	Leu	Ala	Leu	Ser	Lys	Gln	Gly	Lys	Ala	Leu	Thr	Gln	930	935	940
Arg	His	Ala	Lys	Pro	Ser	Val	Ser	Pro	Leu	Leu	His					945	950	955

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<211> 12

<212> PRT

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<220>

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Thr Arg Ile Ser Leu Gln Val Gln Leu Arg Lys Arg  
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<210> 35  
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peptide

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Ala Lys Ile Ile Ile Tyr Ala Val Gln Phe Val Gln Arg  
1 5 10

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Gly Leu Ala Phe Val Leu Arg Gly Lys Ser Leu Tyr  
1 5 10

<210> 37  
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Met Phe Val Leu Arg Gly His Ala Leu Phe Leu Thr  
1 5 10

<210> 38  
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peptide

<400> 38

Gly Trp Arg Val Ser Val Arg His Trp Gln Gly Ala  
1 5 10

<210> 39

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<400> 39

Gly Met Ile Val Ala Val Arg His Trp Arg Gly Asp  
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<210> 40

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Thr Leu Phe Phe Met Arg Leu Val His Ala Leu Gly  
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<210> 41

<211> 5

<212> PRT

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<400> 41

Leu Pro Phe Phe Asp  
1 5

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<211> 7

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Ala Gly Gln Trp His Arg Val  
1 5

<210> 43  
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Gly Gln Trp His Arg Val Ser  
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<210> 44  
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Gln Trp His Arg Val Ser Val  
1 5

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Trp His Arg Val Ser Val Arg  
1 5

<210> 46  
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His Arg Val Ser Val Arg Trp  
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<210> 47

<211> 7

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<400> 47

Arg Val Ser Val Arg Trp Gly  
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<210> 48

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Asp Gly Arg Trp His Arg Val  
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<210> 49

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Gly Arg Trp His Arg Val Ala  
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<210> 50

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Trp His Arg Val Ala Val Ile  
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peptide

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1 5

<210> 53  
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peptide

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Arg Val Ala Val Ile Met Gly  
1 5

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Thr Leu Phe Leu Ala His Gly  
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Leu Phe Leu Ala His Gly Arg  
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Ala Phe Val Leu Arg Gly Lys

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<210> 63

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<400> 63

Phe Val Leu Arg Gly Lys Ser

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<210> 64

<211> 7

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Val Leu Arg Gly Lys Ser Leu

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<210> 65

<211> 7

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1 5

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1 5

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Leu Gln Val Gln Leu Ser Ile Tyr

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<210> 70

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1

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Arg Gln Val Phe Gln Val Ala

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peptide

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Phe Gln Val Ala Tyr Ile Ile  
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Gln Val Ala Tyr Ile Ile Ile  
1 5

<210> 77  
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Val Ala Tyr Ile Ile Ile Lys  
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<210> 78

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<400> 78

Ala Tyr Ile Ile Ile Lys Ala  
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<210> 79

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Tyr Leu Ser Lys Gly Arg Leu Tyr  
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Leu Ser Lys Gly Arg Leu Val Tyr  
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Gly Arg Leu Val Phe Ala Leu Tyr  
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Arg Leu Val Phe Ala Leu Gly Tyr  
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Thr Leu Phe Leu Ala His Gly Tyr  
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Leu Ala His Gly Arg Leu Val Tyr  
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Ala His Gly Arg Leu Val Phe Tyr  
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His Gly Arg Leu Val Phe Met Tyr  
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<210> 92  
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Gly Gln Trp His Arg Val Ser Tyr



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Gln Trp His Arg Val Ser Val Tyr  
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<210> 94  
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Trp His Arg Val Ser Val Arg Tyr  
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Arg Val Ser Val Arg Trp Gly Tyr  
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<210> 97  
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<210> 98  
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<210> 99  
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peptide

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peptide

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His Arg Val Ala Val Ile Met Tyr

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<210> 102

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Arg Val Ala Val Ile Met Gly Tyr

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<210> 103

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Gly Leu Ala Phe Val Leu Arg Tyr

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<210> 104

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peptide

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<210> 107  
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<210> 108  
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<400> 108

Leu Arg Gly Lys Ser Leu Tyr Tyr  
1 5